PATENT ABSTRACTS OF JAPAN

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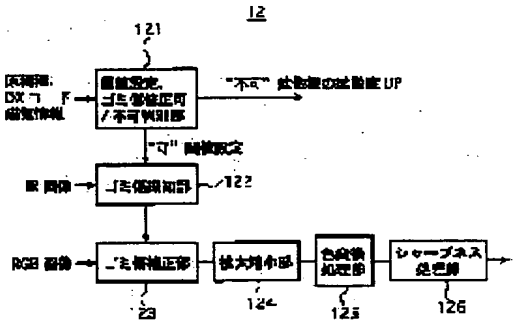
(54) IMAGE PROCESSING METHOD FOR FLAW CORRECTION AND PROCESSOR THEREFOR

(57)Abstract:
PROBLEM TO BE SOLVED: To provide an image processing method without causing detection errors by detecting the flaw or dust of a film with invisible light, correcting the detected flaw or dust through image processing and controlling a threshold, when discriminating the detection of the flaw or dust on the basis of information peculiar to the film.
SOLUTION: Threshold is set by a threshold setting and dust/flaw correction enable discriminating part 121, on the basis of dust/flaw information data sent from a scanner. Next, if there is a part showing a value smaller than the set threshold in dust/flaw information on the object film, a dust/flaw detecting part 122 discriminates a part such as dust or flaws from the dust/flaw information data in comparison with the set threshold on the basis of this value. Then, this discrimination is used as object of correction in a dust/flaw correcting part 123 of the next stage. Moreover, the dust/flaw correcting part 124 performs correcting processing of the dust/flaw through image processing to the RGB image information of the part discriminated as dust or flaws by the discrimination of the dust/flaw detecting part 122.



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CLAIMS

[Claim(s)]
[Claim 1] A blemish amendment image-processing method characterized by having a processing step which is the blemish amendment image-processing method which amends a blemish which detected a blemish of a film, and dust on a film and was detected, and dust by image processing in the non-light, and controls a threshold at the time of distinguishing detection of said blemish and dust based on information on a film proper.
[Claim 2] Information on said film proper is the blemish amendment image-processing method according to claim 1 which is the film kind information of a negative film/positive film.
[Claim 3] Information on said film proper is the blemish amendment image-processing method according to claim 1 which are those with a magnetic layer / information are nothing.
[Claim 4] Information on said film proper is the blemish amendment image-processing method according to claim 1 which is the information relevant to film maximum density in a non-light sensor used for said blemish and dust detection.
[Claim 5] A blemish amendment image-processing method according to claim 4 of acquiring information relevant to said film maximum density from a predetermined portion burned by the film concerned.
[Claim 6] A blemish amendment image-processing method according to claim 1 to 5 of in addition to said processing step memorizing a detection result of a blemish or dust by said non-light at the time of image reading of the 1st about the film concerned, detecting film deterioration generated based on this storage result after said image reading of the 1st, and having a processing step which amends film deterioration which detected by image processing.
[Claim 7] A blemish amendment image-processing method according to claim 1 of having a processing step which raises whenever [diffusion / of film illumination light] when it judges that the film concerned is a blemish and a film in which dust detection is impossible as a result of a blemish by said non-light, or dust detection in addition to said processing step.
[Claim 8] The blemish amendment image processing system characterized by to have a processing means control the threshold at the time of distinguishing detection of said blemish and dust, based on the information on the film proper which is the blemish amendment image processing system which has a means detect the blemish of a film, and the dust on a film by the non-light, and the blemish which detected with this detection means and a means amend dust by the image processing, and detected with a means detect the information on a film proper, and this detection means.
[Claim 9] Information on said film proper is a blemish amendment image processing system according to claim 8 which is the film kind information of a negative film/positive film.
[Claim 10] Information on said film proper is a blemish amendment image processing system according to claim 8 which are those with a magnetic layer / information are nothing.
[Claim 11] Information on said film proper is a blemish amendment image processing system according to claim 8 which is the information relevant to film maximum density in a non-light sensor used for said blemish and dust detection.
[Claim 12] A blemish amendment image processing system according to claim 11 which has a means to acquire information relevant to said film maximum density from a predetermined

portion burned by the film concerned in addition to said each means.
[Claim 13] The blemish amendment image processing system according to claim 8 to 12 which detects the film deterioration which generated based on a result which was memorized for a means memorize a detection result of a blemish or dust by said non-light at the time of image reading of the 1st about the film concerned, and this storage means in addition to each of said means after said image reading of the 1st, and has a processing means amend film deterioration which detected by image processing.
[Claim 14] A blemish amendment image processing system according to claim 8 which has a means to control to raise whenever [diffusion / of film illumination light] when it judges that the film concerned is a blemish and a film in which dust detection is impossible as a result of a blemish by said non-light, or dust detection in addition to said each means.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] More specifically, this invention relates to the blemish amendment image processing system which applied the blemish amendment image-processing method which amends the blemish which detected and detected the blemish and dust on a film by the non-lights, such as infrared light, and dust by the image processing, and this method about the blemish amendment image-processing method and the equipment for it.
[0002]
[Description of the Prior Art] Baking to the printing paper of the image photoed by photographic films (only henceforth a film), such as a negative film and a positive film (reversal film) Although the so-called direct exposure (analog exposure) which projects the image of a film on printing paper conventionally, and carries out field exposure of the printing paper was in use In recent years, the image of the printing equipment using digital exposure, i.e., a film, is read in photoelectricity. After changing the read image into a digital signal, the digital printer which performs various image processings, considers as the image data for record, carries out scan exposure of the printing paper, and records an image by the record light modulated according to this image data is put in practical use.
[0003] Since an image is changed into digital image data, it can be burned by image data processing in a digital printer and the exposure conditions at the time are determined, it is possible to obtain the high-definition print which was performing suitably amendment of a jump of the image resulting from a backlight, speed light photography, etc., amendment of TSUBURE, sharpness (sharp-izing) processing, a color, or concentration Ferrier etc., and was not obtained in the conventional direct exposure. Moreover, to composition of two or more images, or an image division pan, an output is possible also for the print which could perform composition of an alphabetic character etc. by image data processing, responded to the use, and was edited / processed freely.
[0004] The scanner with which such a digital printer reads fundamentally the image recorded on the film in photoelectricity (image reader), The picture input device which has the image processing system which carries out the image processing of the image read with this scanner, and is made into the image data for an output (exposure conditions), It consists of a printer which carries out scan exposure of the printing paper according to the image data outputted from this picture input device, and records an image (latent image), and an image output unit which has the processor which performs a development to printing paper [finishing / exposure], and is considered as a print.
[0005] With an above-mentioned scanner, incidence of the reading light by which outgoing radiation was carried out from the light source is carried out to a film, the projection light which supports the image on a film is obtained, and after reading an image and performing various kinds of image processings if needed by carrying out image formation of this projection light to image sensors, such as a CCD sensor, and carrying out photo electric conversion to them with an image formation lens, it sends to an image processing system as image data (signal) of a film. An image processing system performs the image processing according to the conditions which set

up image-processing conditions and were set up from the image data read with the scanner, and sends it to a printer as output image data for image recording.
[0006] If it is equipment using light beam scan exposure, while modulating a light beam according to the image data sent from the image processing system and deflecting this light beam to a main scanning direction by the printer, for example By conveying printing paper in the direction of vertical scanning which intersects perpendicularly with a main scanning direction, by the light beam which supports an image, printing paper is exposed (burned), a latent image is formed, in a processor, a development is performed, this latent image is developed, and it considers as the print which reproduced the image on a film.
[0007]
[Problem(s) to be Solved by the Invention] By the way, in order to obtain the high-definition print with which the image of high quality was reproduced, it is indispensable that the film used as the subject copy of a print is in a good condition. Although this film is conveyed within a camera and a scanner etc. for photography, development, reading (burned), etc., in this case, a film plane may **** to supporter material etc., consequently a blemish may attach it to the table rear face of a film. Moreover, since especially a film is treated in the usual environment where air clarification etc. is not performed, in many cases, it is not rare for foreign matters, such as dust and dust, to adhere to the table rear face, either.
[0008] As mentioned above, reading of the film image in a scanner carries out incidence of the reading light to a film, obtains projection light, and is performed by reading this in photoelectricity by a CCD sensor etc. Under the present circumstances, if the foreign matter has adhered to the film plane or the film plane is damaged, the optical reinforcement of the projection light which the quantity of light decreases, and the amount of transmitted lights of reading light increases to reverse when a blemish is deep, and carries out incidence to a CCD sensor etc. by reading light (projection light) shading or diffusing will be no longer a proper thing corresponding to the image photoed by the film.
[0009] As this result, a foreign matter and a blemish will be reproduced by the obtained image like a shadow, or it will become the sensibility to which the surrounding image of a blemish faded, and it will become impossible to obtain a quality image. Various cure proposals have been proposed about such a problem. For example, the technology currently indicated by the registration patent No. 2559970 is mentioned.
[0010] In the method or equipment which amends the effect of the defect of a film to the image with which the above-mentioned technology was memorized by the storage (film) Match the infrared energy distribution corresponding to the Li student **** aforementioned defect with the location on a film, and it is detected. he applies infrared energy and visible-ray energy to a film, and be fastidious in it — be alike — On the other hand, match visible-ray energy distribution with the location on a film, and it is detected. since — it is used in order to compensate the effect of a storage to the taken-out image data — When the detected infrared energy distribution reinforcement is larger than a predetermined threshold about each location on a film, The visible-ray energy distribution reinforcement of the location concerned is reinforced to the level which negates the infrared energy distribution reinforcement of the location concerned. When the detected infrared energy distribution reinforcement is below a predetermined threshold, the effect of the defect of a film is amended by amending the visible-ray energy distribution reinforcement of the location concerned by interpolation.
[0011] This invention is what was made in order shall be still more certain and to be easy to use the above-mentioned technology. More specifically While ensuring detection of a blemish or dust as said blemish and threshold of dust detection are controlled based on the information on the film proper concerned in case the blemish and dust which detected the blemish of a film and the dust on a film and were detected by the non-light are amended by the image processing It is in offering the blemish amendment image processing system which applied the blemish amendment image-processing method of incorrect-detecting anythings other than a blemish or dust neither with a blemish nor dust, and this method.
[0012] This invention can also be applied to the following methods. That is, when (1) infrared energy distribution reinforcement is below a predetermined threshold, it is possible to apply to

the method of amending the visible-ray energy distribution reinforcement of the location concerned with the interpolation from a circumference pixel, and amending by carrying out the multiplication of the gain which negates a decreased part of infrared energy for the visible-ray energy distribution reinforcement of the location concerned in beyond the above-mentioned threshold.
[0013] moreover, when (2) infrared energy distribution reinforcement is below the 1st predetermined threshold The interpolation from a circumference pixel amends the visible-ray energy distribution reinforcement of the location concerned. In below beyond the threshold of the above 1st, and the 2nd threshold It is possible to apply to the method which amends by carrying out the multiplication of the gain which negates a decreased part of infrared energy for the visible-ray energy distribution reinforcement of the location concerned, and is not amended in beyond the threshold of the above 2nd.
[0014] Although it is applicable also to the above thresholds, the step which controls the threshold shown by this invention explained below is made to explain in the following explanation by making the method of amending the visible-ray energy distribution reinforcement of the location concerned with the interpolation from a circumference pixel into an example, when infrared energy distribution reinforcement is below a predetermined threshold, in order to simplify explanation.
[0015]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, a blemish amendment image-processing method concerning this invention is the blemish amendment image-processing method which amends a blemish which detected a blemish of a film, and dust on a film and was detected, and dust by image processing in the non-light, and is characterized by to control a threshold at the time of distinguishing detection of said blemish and dust based on information on a film proper.
[0016] As information on said film proper, film kind information of a negative film/positive film, and those with a magnetic layer / information are nothing can use suitably. Moreover, as information on said film proper, information relevant to film maximum density in a non-light sensor used for said blemish and dust detection can also be used suitably. In this case, as for information relevant to film maximum density, it is desirable to make it obtain from a predetermined portion burned by the film concerned.
[0017] Moreover, a blemish amendment image-processing method concerning this invention is characterized by in addition to the above-mentioned processing, to memorize a detection result of a blemish or dust by said non-light at the time of image reading of the 1st about the film concerned, to detect deterioration of a film generated based on this storage result after said image reading of the 1st, and to amend deterioration of a detected film by image processing.
[0018] Moreover, a blemish amendment image-processing method concerning this invention is characterized by raising whenever [diffusion / of film illumination light], not being conspicuous and carrying out a blemish and dust, when it judges that the film concerned is a blemish and a film in which dust detection is impossible as a result of a blemish by said non-light, or dust detection.
[0019] This invention can take shape as a blemish amendment image processing system which applies an above-mentioned method.
[0020] Namely, a means by which this invention detects a blemish of a film, and dust on a film by the non-light, A means to be the blemish amendment image processing system which has a blemish detected with this detection means, and a means to amend dust by image processing, and to detect information on a film proper, Shape can be taken as a blemish amendment image processing system characterized by having a processing means to control a threshold at the time of distinguishing detection of said blemish and dust, based on information on a film proper detected with this detection means.
[0021] In addition, in a blemish amendment image processing system concerning this invention, film kind information of a negative film/positive film, and those with a magnetic layer / information are nothing can use suitably as information on said film proper. Moreover, as information on said film proper, information relevant to film maximum density in a non-light

sensor used for said blemish and dust detection can also be used suitably. In this case, you may make it acquire information relevant to film maximum density from a predetermined portion burned by the film concerned.
[0022] Moreover, it sets to a blemish amendment image processing system concerning this invention. For said each means, in addition, a means to memorize a detection result of a blemish or dust by said non-light at the time of image reading of the 1st about the film concerned, Film deterioration generated based on a result memorized for this storage means after said image reading of the 1st may be detected, and you may constitute so that it may have a processing means to amend film deterioration which detected by image processing.
[0023] Furthermore, in a blemish amendment image processing system concerning this invention, when it judges that the film concerned is a blemish and a film in which dust detection is impossible as a result of a blemish by said non-light, or dust detection in addition to said each means, you may constitute so that it may have a control means which raises whenever [diffusion / of film illumination light].
[0024]
[Function of the Invention] In case the structure, a property, etc. have various types at a film and these various films are treated as everyone knows, it is required to carry out the handling suitable for the film of each type. For example, with a color film, a monochrome film and a negative film, a positive film and the film of 135 types, and an APS type film, in case the blemish amendment image processing concerning this invention is applied to these, it is necessary to apply to them in consideration of each property.
[0025] In case the blemish amendment image processing concerning this invention is specifically applied to the film of various types, it is indispensable to detect the blemish on a film and dust by the non-light (infrared light), namely, to determine the threshold used as the criteria in the case of judging whether a blemish and dust exist from the result of film reading by the non-light based on the type of the target film, i.e., the property, on the film made into an object.
[0026] for example, the negative film and positive film which are use now as show in drawing 5 in said registration patent No. 2559970 specification — the long wave of cyanogen coloring matter — since near absorption properties differ considerably, when the wavelength dependency of the sensitivity of an infrared (henceforth IR) sensor is take into consideration, it is desirable to change an above-mentioned threshold by the case where they are the case where the film used as a processing object is a negative film, and a positive film.
[0027] that is, it is shown in drawing 4 — as — the center of the sensitivity of IR sensor — the long wave of the cyanogen coloring matter of a negative film and a positive film — since the information on a cyanogen image will be read together when a negative film is scanned by IR in being between near absorption, when aimed at a negative film, compared with the case where it is aimed at a positive film, it is desirable to set up an above-mentioned threshold more highly. This is an example of the threshold control in the blemish amendment image processing concerning this invention.
[0028] In addition, since the coloring matter currently used among each maker differs in fact and it may change also with types of a film, it is desirable to investigate and examine IR absorption property of the negative film of a commercial scene and a positive film etc., and to make it reflect in details at the time of a setup of an above-mentioned threshold.
[0029] It is desirable to acquire the information on the maximum density (or value according to this) of a negative film in the case of a threshold setup in the case of being aimed at an above-mentioned negative film. That is, the magnitude of the information on the cyanogen image contained during the output of IR sensor is a reason with desirable acquiring the information on the maximum density of the negative film corresponding to the maximum density of a cyanogen image from it being a thing depending on the maximum density of a cyanogen image on the occasion of the decision of an above-mentioned threshold.
[0030] Although you may scan and ask for an actual image, the information on the maximum density of an above-mentioned negative film comes to be acquired as information stabilized extremely by using the method of exposing beforehand the gray patches 51 and 51 and — from which it is predetermined magnitude and the concentration of abbreviation regularity is obtained

by the point of a filmstrip 50 etc., for example, as shown in drawing 5 . The formation location of the gray patch 51 is not limited to the location shown in drawing.
[0031] Moreover, as shown also in drawing 5 , the film (the so-called APS type of film) equipped with the magnetic-recording layer has also appeared on the market in the commercial scene in recent years. In the film which has such a magnetic-recording layer, since the refractive index of a magnetic-recording layer differs from the refractive index of the film base, in order to avoid the effect, it is desirable to change the above-mentioned threshold with the film (APS type film) equipped with the magnetic-recording layer and a common film without a magnetic-recording layer.
[0032] Moreover, if the record function by the magnetic-recording layer which an above-mentioned APS type film has is utilized positively, the result of IR inspection of a film can be made to memorize. For example, if the result of IR inspection conducted about a certain film at the time of the first print (coincidence print) is memorized, when there is a request of a reprint, it can know whether the film concerned had change by comparing with the above-mentioned data the data again read by IR sensor.
[0033] That is, even if there is neither dust nor a blemish in a film at first, while taking in and out of NEGAKYARIA repeatedly, a blemish sticks, or when a state of preservation is bad, there is a problem of it being sufficient for dust or silverfish just, and deteriorating by carrying out in it. Then, when the value when scanning first, i.e., the maximum concentration of IR sensor at the time of the 1st scan, (or value according to this) is memorized as a threshold, it scans after it and the above-mentioned threshold is exceeded, it judges with there being dust and a blemish.
[0034] Usually, since a coincidence print corresponds as a time of the 1st scan of the above, the data at this time is recorded on the magnetic track 52 in drawing 5 . If the above-mentioned stored data is read and a difference is among both when there is a reprint request, it will judge that this difference is the deterioration generated on the film after performing a coincidence print, and amendment to this will be performed.
[0035] Moreover, when an object film is a monochrome (so-called black and white) film, since the silver image on a film absorbs IR, detection of the above blemishes and dust is impossible. Therefore, when it enables it to detect that it is a monochrome film as a film kind and it is detected that it is a monochrome film, it is desirable to raise whenever [diffusion, other methods, for example, film illumination light, other than the blemish amendment by image processing,], and to shift to processing in which it is not conspicuous and a blemish and dust are carried out.
[0036] The diffusion board with which whenever [diffusion] differ is prepared for drawing 6 as the example, and the example which switches this if needed is shown. In addition, if a diffusion board is changed into the big thing of whenever [diffusion], since the quantity of light of the source of the illumination light will fall sharply, it is necessary to take this into consideration. For example, it is necessary to reduce reading speed and to read slowly.
[0037] In addition, there is a system (by this system, about 20% of silver image exists to a coloring matter image) which excluded the desilvering process called for example, the dry heat developing method other than a common monochrome film as a film which cannot detect the above blemishes by IR and dust, and above-mentioned processing is effective also to such a system.
[0038]
[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to details based on the suitable example shown in an attached drawing.
[0039] Drawing 1 is the block diagram showing the concept of the blemish amendment image processing system concerning the 1st example of this invention. The blemish amendment image processing system 10 shown in drawing 1 consists of image output units 13 which become the image-processing section 12 which performs an image processing required for the film scanner 11 which reads a film manuscript in photoelectricity, and the image which read by this film scanner 11, the printer 21 which carries out scan exposure of the printing paper (sensitive material) according to the image data (exposure conditions) processed in this image-processing section 12, and printing paper [finishing / exposure] from the processor 22 which performs a

development. In addition, CRT monitor12a for assay and keyboard 12b are connected to the image-processing section 12.
[0040] The image-processing section 12 is a processing portion which has the function which sets up the threshold used in case it judges whether they are a blemish and dust based on information, such as a manuscript kind, magnetic information on a film, and the DX code, so that it may explain in full detail behind, or distinguishes the detected blemish, and correction good / failure of dust.
[0041] The detailed example of a configuration of the above-mentioned film scanner (only henceforth a scanner) 11 is shown in drawing 2 . A light source lamp and 112 extract 111 among drawing 2 , in an image pick-up lens and 117, a dichroic prism and 118 show RGBCCD of three lines, and 119 shows [the film with which in 113 a mirror box and 114 become a diffusion board and 115 becomes a reading object, and 116] one-line CCD for IR (infrared radiation). Moreover, as for amplifier and 120b, 120a shows the A/D (analog to digital) converter.
[0042] As shown in drawing 2 , the image information of RGB is read in RGBCCD118 of three lines, and it is sent out to the next step (image-processing section 12) as digital data, and the dust blemish information detected by infrared radiation is sent out to the next step (image-processing section 12) from one-line CCD119 for IR. Moreover, the scanner 11 is equipped with a detection means to read the classes (exception of a negative film/positive film, those with a magnetic layer / nothing one, and a color/monochrome etc.) of film used as a processing object, or a directions means to direct the class of film although not illustrated.
[0043] The detailed example of a configuration of the above-mentioned image-processing section 12 is shown in drawing 3 with the actuation. the inside of drawing 3 , and 121 -- in the dust blemish amendment section and 124, the enlarging-or-contracting section and 125 show the color transform-processing section, and, as for threshold setup and dust blemish correction good / improper distinction section and 122, 126 shows [the dust blemish detection section and 123] the sharpness processing section, respectively. In addition, according to the distinction result in threshold setup and dust blemish correction good / improper distinction section 121, processing can distribute so that it may explain in full detail behind.
[0044] The actuation of the blemish amendment image processing system 10 concerning this example constituted as mentioned above below is explained. When the film used as a processing object is set to a scanner 11, it sets on a scanner 11, and the class of film is detected or directed first. Here, the film shall have been recognized to be 135 sizes (for it not to be APS without a magnetic layer), and a negative color film.
[0045] Subsequently a scanner 11 reads the film by RGB and IR light. Consequently, the image data (henceforth RGB image information) of R and G, and B3 color and the blemish by IR light, and a dust detection result (henceforth dust blemish information) are obtained. [as shown in drawing 2] These data is sent to the image-processing section 12 of the next step.
[0046] In the image-processing section 12, based on the above-mentioned data sent from the scanner 11, when an above-mentioned processing-object film is [dust blemish] correctable, it advances in the blemish by the image processing, and the direction which performs dust amendment. In addition, as mentioned above, it is a monochrome film, and a processing-object film will advance in the direction which raises whenever [diffusion / of the illumination light] and copes with it, when dust blemish correction is improper. Here, explanation is hereafter continued towards performing the blemish by the image processing, and dust amendment.
[0047] Specifically in threshold setup and dust blemish correction good / improper distinction section 121, a threshold is set up based on the above-mentioned data (dust blemish information) sent from the scanner 11. On the occasion of a setup of this threshold, the method of determining as mentioned above based on the maximum concentration of the gray patch 51 (refer to drawing 5) arranged at the point of a processing-object film or the method of introducing the correction factor by an object film being a negative film can be used.
[0048] Next, in the dust blemish detection section 122, the dust on an object film and the existence of a blemish are checked from above-mentioned data (dust blemish information) by the comparison with this based on the threshold set up in the top. That is, if there is a portion which shows a value smaller than the threshold set up into the dust blemish information on an

object film in the top, this will be judged to be dust or a blemish and it will consider as the object of the amendment in the dust blemish amendment section 123 of the next step.
[0049] Next, in the dust blemish amendment section 123, amendment processing of the dust blemish by the image processing is performed about said RGB image information applicable to the portion judged by the judgment in the dust blemish detection section 122 to be dust or a blemish. It is a method like interpolation processing using the value of a circumference pixel, and, specifically, the pixel applicable to dust and a blemish is interpolated. Of course, other various methods may be used as the method of this amendment processing.
[0050] By according to the above-mentioned example, having controlled said blemish and threshold of dust detection by the non-light based on the information on the film proper concerned, when amending the blemish and dust which detected the blemish of a film, and the dust on a film and were detected by the image processing While ensuring detection of a blemish or dust, the blemish amendment image processing system which incorrect-detects anythings other than a blemish or dust neither with a blemish nor dust is realizable.
[0051] Drawing 7 is the block diagram showing the outline configuration of the scanner used for the blemish amendment image processing system concerning the 2nd example of this invention. The difference with the scanner 11 used for the blemish amendment image processing system 10 concerning the example shown in drawing 1 As opposed to so to speak the scanner 11 used for the blemish amendment image processing system 10 concerning the example shown in drawing 1 dividing light spatially using a dichroic prism The scanner 71 in the blemish amendment image processing system concerning this example The light from the source 111 of the illumination light was constituted so that it might read into a sensor by time sharing, and it has the color separation filter turret 711 (refer to drawing 8) for time sharing, and has area CCD 712 as a sensor.
[0052] The CRT monitor12a for assay connected to the image-processing section 12 which performs an image processing required for other components, i.e., the image read with the scanner 71, the printer 21 which carries out scan exposure of the printing paper (sensitive material) according to the image data (exposure conditions) processed in this image-processing section 12, and printing paper [finishing] at the image output unit 13 which consists of a processor 22 which performs a development, and the image-processing section 12, keyboard 12b, etc. are the same as that of the above-mentioned example.
[0053] In the blemish amendment image processing system concerning this example, although the methods of the data acquisition from an object film differ, since it is the same as that of the example previously explained about future processings, detailed explanation of operation is omitted here. It is the same as that of the example previously explained also about the effect.
[0054] In addition, each of each above-mentioned examples shows an example of this invention, and it cannot be overemphasized that this invention is not what should be limited to these.
[0055]
[Effect of the Invention] As mentioned above, as explained to details, according to this invention, the blemish of a film and the dust on a film are detected by the non-light. While ensuring detection of said blemish and dust as the threshold which distinguishes detection of said blemish and dust based on the information on the film proper concerned is controlled in case the blemish and dust which were detected are amended by the image processing It is possible to realize the blemish amendment image processing system which applied the blemish amendment image-processing method of incorrect-detecting anythings other than a blemish or dust neither with a blemish nor dust, and this method.

[Translation done.]